UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604

DATE: NOV 13 2014

SUBJECT: INSPECTION REPORT – West Bay Exploration Co, Jackson County, Michigan
Facility: Lantis 30 CPF, Napoleon Township

FROM: Natalie Topinka, Environmental Scientist
AECAS (IL/IN)

THRU: Nathan Frank, Chief
AECAS (IL/IN)

TO: File

Date of Inspection: August 28, 2014

Attendees: Natalie Topinka, Environmental Scientist, U.S. EPA
Kristy Shimko, Geologist, Office of Oil, Gas and Minerals, MDEQ
Scott Miller, Supervisor, Air Quality Division, MDEQ
Tim Baker, VP of Operations/Engineering, West Bay Exploration
Dave Grewe, Production Manager, West Bay Exploration
Terry R. Pelham, Production Foreman, West Bay Exploration

Purpose of Inspection: The purpose of conducting an inspection of West Bay Exploration Co's Jackson County operations was to assess compliance with the Michigan State Implementation Plan and any applicable air permits.

Company Description and Background:

Location: Approximately 5500 Banner Road, Jackson, Michigan 49201
(Lat: 42.181082, Long: -84.232139)

Primary Contact: Terry R. Pelham, Production Foreman

West Bay Exploration Company has headquarters in Traverse City, Michigan, with operations in several states including Michigan, Texas, Oklahoma, and North Dakota. The company employs 20 people and many more contractors and lease operators.

Opening Conference

I arrived at the Lantis 30 CPF at 12:05 and met Scott Miller, of the AQD of MDEQ, at the site. At the time of my arrival, a truck was parked next to the tank battery to load material from the tanks (it wasn't clear if the truck was transporting oil or brine). I made note of a petroleum odor, and Mr. Miller and I both observed continuous visible emissions from the flare. The flare receives vapors from tanks, truck venting during loading, and/or emergency/overload conditions.

Although I had not announced the inspection to the company, a few minutes later, Tim Baker and Dave Grewe, of West Bay, arrived at the site. We made introductions, I showed my credentials, and we exchanged business cards. Mr. Baker began to give us an overview of the site, and Kristy Shimko, of MDEQ's Office of Oil, Gas and Minerals arrived. Terry Pelham, Production Foreman for West Bay, arrived later during the inspection. The following information was obtained from West Bay representatives.

Lantis 30 Facility Overview

The Lantis 30 facility was constructed approximately five years ago (2009) and collects oil, gas, and water (brine) produced from seven wells. Onsite are seven heater-treaters, one for each well. The heater treaters separate the emulsion of oil, gas, and water by applying heat from a gas-fired burner. The components of the emulsion separate into layers according to density and can then be drawn off individually. Mr. Baker explained that the oil and brine were directed to the tanks by a dump valve – essentially, when the level of oil or brine reaches a certain level, a float is activated, which opens a valve and a quantity of the liquid is directed to the tanks. Gas is sent to one of two main Panhandle Eastern Pipeline Company pipelines to be transported to the nearby Haystead (also owned by West Bay) natural gas processing facility for compression and further refinement, while oil and brine are piped to separate on-site storage tanks. There are eight 400 barrels tanks at the site.

Mr. Baker estimated that the Lantis 30 facility produced about 1000 barrels of oil, 5500 barrels of brine, and 4-5MM scf of gas per day. The oil and brine are transported off-site by truck. About 40 water trucks and 3 oil trucks with capacities of about 300 barrels each service the facility daily. Mr. Baker stated that West Bay was in the middle of the permitting process for commencing operation of an injection well to dispose of the brine and therefore drastically reduce the number of trucks needed to service the facility, but that the project had not yet been approved by regulatory authorities including US EPA.

Mr. Baker stated that the tanks were equipped with a vapor recovery unit (VRU), whereby vapors in the tank headspace were supposed to be piped back to the heater treaters and included in the gas stream sent to the pipeline. However, Mr. Baker explained that recently, West Bay had discovered that the operation of the VRU, especially during truck loading, introduced high levels of oxygen into the gas mix that was putting the gas out of specification for delivery into the pipeline. In addition, the elevated concentration of oxygen was causing excessive corrosion to

components of the heater treaters. Therefore, on July 18, 2014, West Bay had shut down its VRU at the Lantis 30 and several other West Bay facilities. It was unclear where the vapor from the headspace of the oil and brine tanks was now being directed.

Mr. Baker stated that West Bay was considering installing a fan on the flare to draw vapors to the flare, and that a 9-to-1 ratio of air to hydrocarbons was necessary for good flare combustion. Mr. Baker stated that the company was also planning on routing vapors from the VRU to go directly to the flare, although he did not specify a timeframe for this action.

Facility Tour

I took several photos of the flare and overall facility (see photos section). I climbed the stairway of the tank battery and viewed each of the thief hatches with and without the IR camera (a FLIR GF320). At least two of the hatches were audibly hissing, and emissions from the hatches were causing visible refraction of the air around the hatch. The petroleum odor was also quite strong along the walkway. The IR camera showed all the thief hatches leaking continuously (see IR Video Log and diagram). The truck that had been loading earlier had departed the facility by this point.

I pointed out my observations to Mr. Baker and Mr. Grewe. Both Mr. Baker and Mr. Grewe stated that the leaking hatches were out of the ordinary. They speculated that a dump valve at one of the heater treaters was stuck open, causing continuous flow into the tank and excess volatilization of material in the tanks. The West Bay representatives immediately went to investigate. It was confirmed that a water dump valve was indeed stuck open. Mr. Pelham stated that the individual water dump had been shut off until the stuck valve could be fixed. However, during the period of my observations, the hatches continued to leak.

Mr. Grewe stated that the weights of the springs on the thief hatches were six ounces, meaning that pressure would be relieved from the hatches if it exceeded six ounces per square inch (oz/in^2). I asked Mr. Baker if West Bay owned an IR camera. He stated that West Bay did not, but that it had a third party conduct an IR survey once per year. I asked what kind of procedures were in place to monitor the facility's equipment to ensure it was operating properly. Mr. Baker stated that the heater treater flows were monitored remotely, and that there was remote gauging on the tanks as well. He stated that when the lease operators report their numbers (such as the quantities of oil or brine removed from the tanks for transport), it was company policy that the operators also ensure that all equipment was in working order.

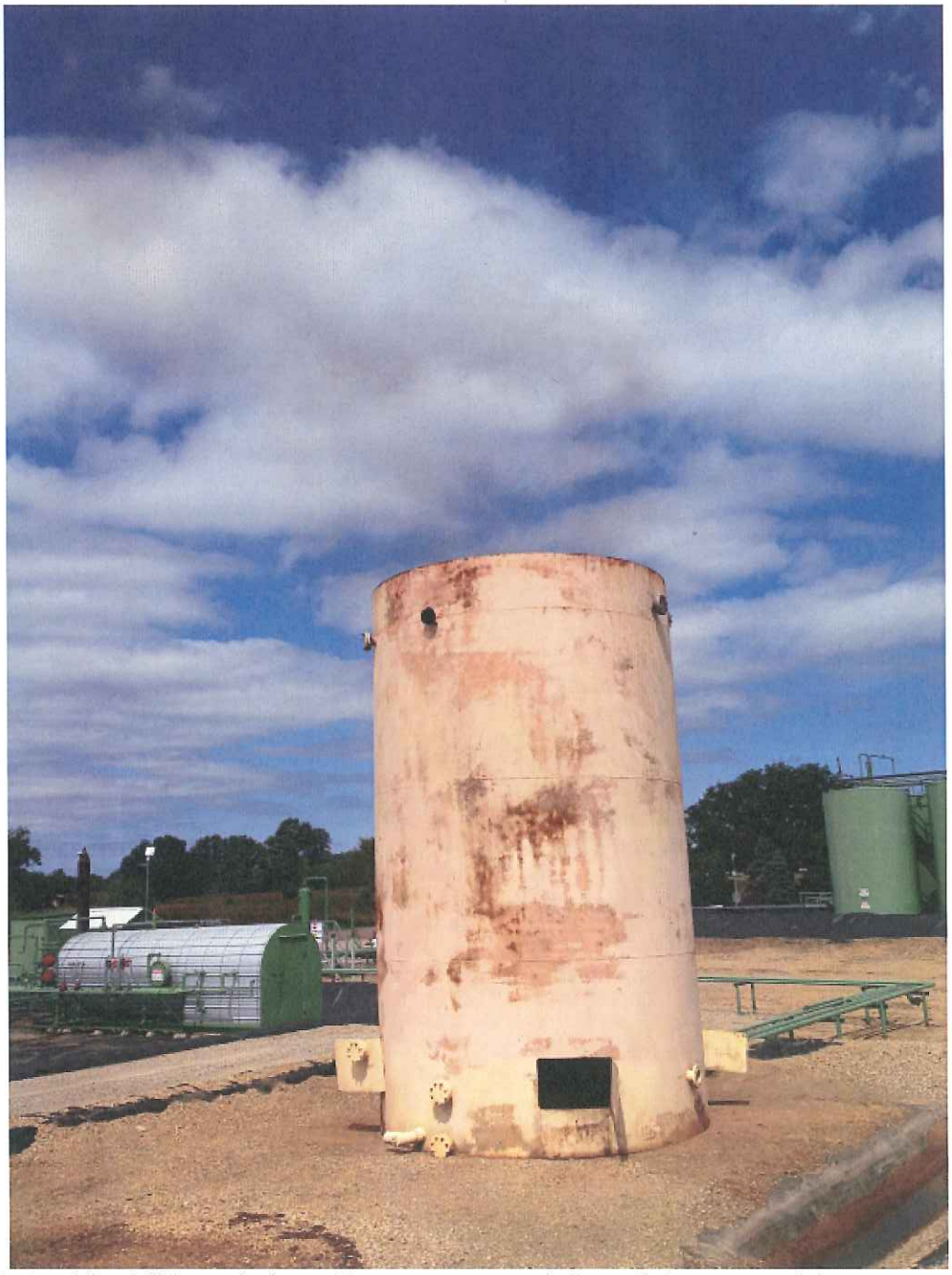
The visible emissions from the flare were present for the duration of my inspection.

Closing Conference

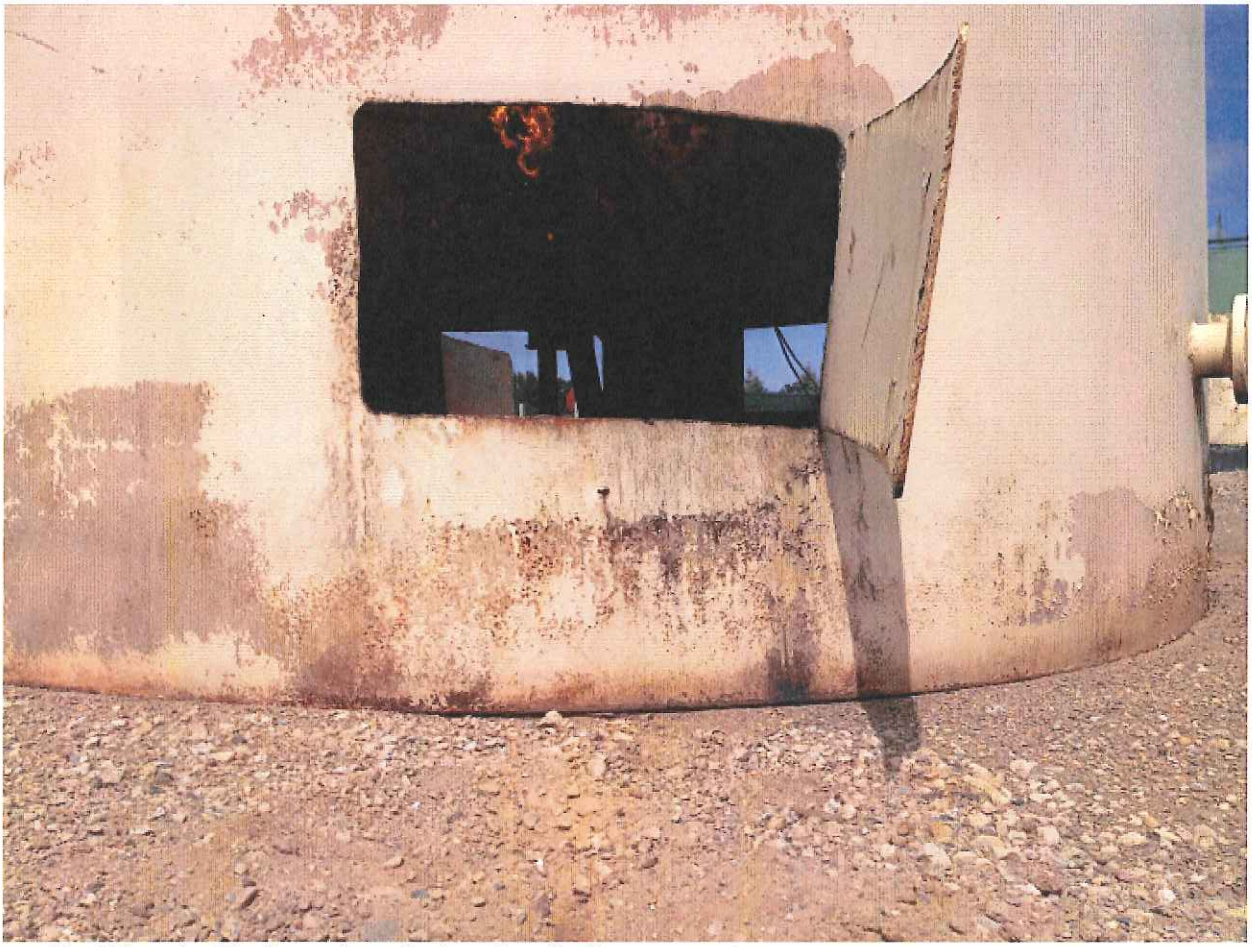
I shared my observations with Mr. Baker and Mr. Pelham regarding which tank hatches were leaking. I also stated that I was concerned that the visible emissions from the flare indicated

improper design or operation. The West Bay representatives did not claim any information as confidential business information. Mr. Pelham, Ms. Shimko, Mr. Miller and I agreed to caravan to another West Bay facility nearby. We departed the Lantis 30 facility at approximately 1:30 pm.

Photos



1) Flare with visible emissions. Heater treaters at left; tank battery at right.

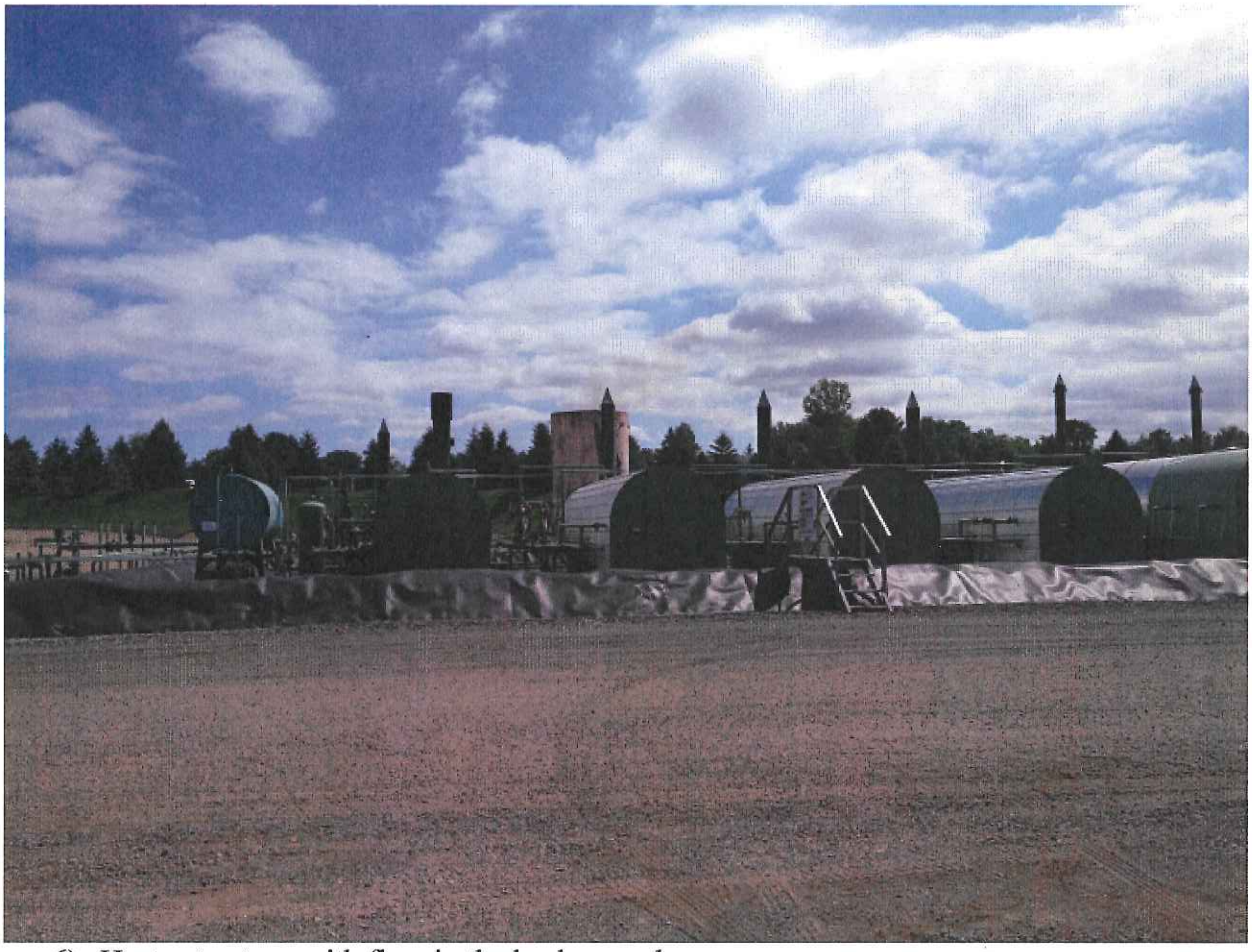


2) View inside flare shroud, showing lit flame.

3) Heater treaters.

4) Tank battery, and flare showing visible emissions.

5) Example of thief hatch at top of tank.



6) Heater treaters, with flare in the background.

IR Video Log

Video ID number	Description
MOV_0706.mp4	Leaking thief hatch
MOV_0707.mp4	Leaking thief hatch
MOV_0708.mp4	Leaking thief hatch
MOV_0709.mp4	Leaking thief hatch
MOV_0710.mp4	Leaking thief hatch
MOV_0711.mp4	Leaking thief hatch
MOV_0712.mp4	Leaking thief hatches (2)
MOV_0713.mp4	Leaking thief hatches (2)

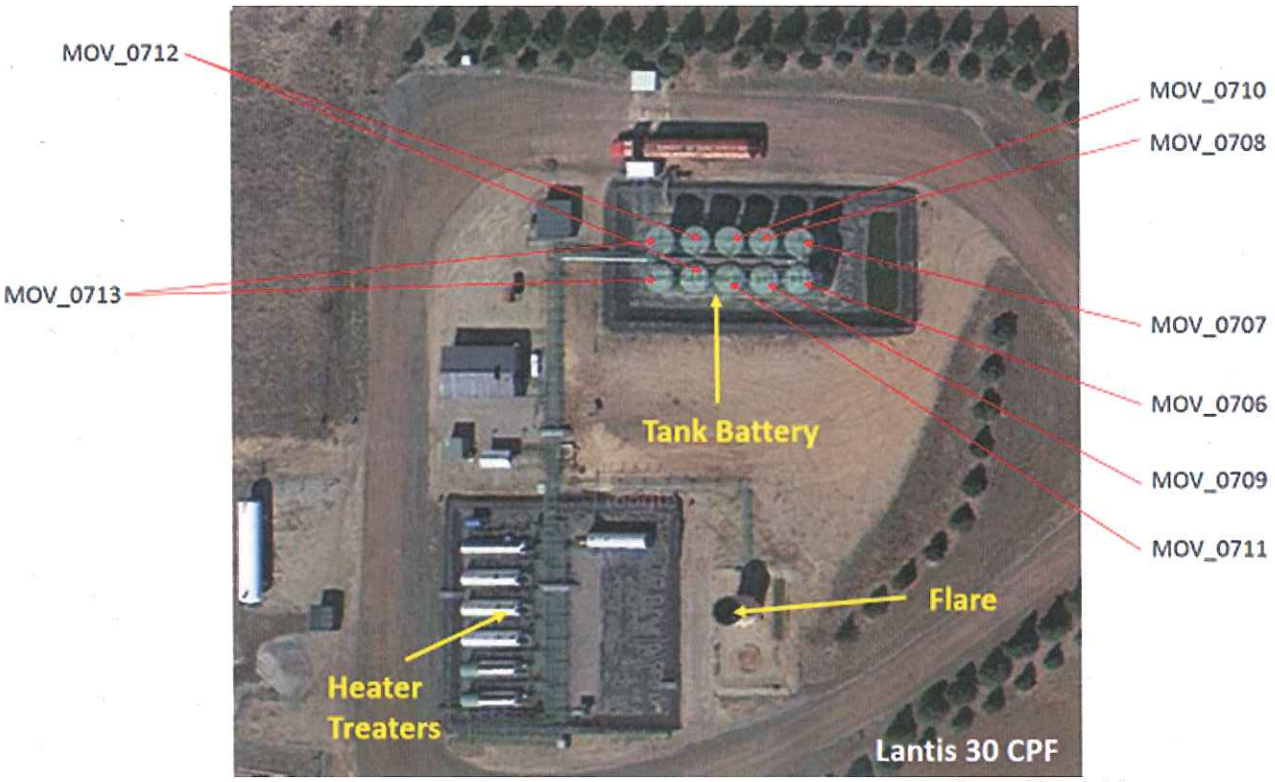


Image: Google Maps

Standard bcc:s: official file copy w/attachment (s)
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originating organization reading file w/attachment (s)

Other bcc's:

Creation Date:	October 15, 2014
Filename:	G:\Air Enforcement And Compliance Branch\Planning and Administration Section\Documents Routed for Signature\IL IN Documents\Topinka\West Bay Exploration - Lantis 30 CPF Inspection Final.docx
Legend:	ARD:AECAB:AECAS(IL/IN): N. Topinka